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DEFENSE PROCUREMENT PROCESS

HEARING

BEFORE THE

TASK FORCE ON SELECTED DEFENSE PROCUREMENT MATTERS

OF THE

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DEFENSE PROCUREMENT PROCESS

THURSDAY, SEPTEMBER 20, 1984

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
TASK FORCE ON SELECTED DEFENSE PROCUREMENT MATTERS,
Washington, DC.

The task force met, pursuant to notice, at 2:38 p.m., in room SR-222, Russell Senate Office Building, Senator Dan Quayle (chairman of the task force) presiding.

Present: Senators Quayle, Nunn, and Bingaman.

Staff present: Alan R. Yuspeh, general counsel; Arnold L. Punaro, staff director for the minority; and Jeffrey H. Smith, minority counsel; David S. Lyles and John J. Hamre, professional staff members; and Marie Chaillet, staff assistant.

Also present: Bernard R. Toon, assistant to Senator Quayle; Edward McGaffigan, Jr., assistant to Senator Bingaman; Charles C. Smith, assistant to Senator Dixon; and Ralph White, assistant to Senator Levin.

OPENING STATEMENT BY SENATOR DAN QUAYLE, CHAIRMAN

Senator QUAYLE. The committee will come to order.

The Task Force on Procurement Policy meets today to receive testimony from two individuals who have served with distinction in the Department of Defense and who are highly knowledgeable about the defense procurement process.

This is the second in a series of three hearings to permit the task force to overview the subject of defense acquisition.

Our witnesses today are Norm Augustine and Jack Gansler. Mr. Augustine was formerly the Under Secretary of the Army and has recently served as Chairman of the Defense Science Board of the Department of Defense.

Mr. Augustine is the author of the very thoughtful book on defense procurement titled "Augustine's Laws". Mr. Augustine presently is employed as the president of Martin Marietta Denver Aerospace Co.

Dr. Jack Gansler was formerly a Deputy Assistant Secretary of Defense. Dr. Gansler has authored a book titled "The Defense Industry." Dr. Gansler is highly knowledgeable about defense procurement, not only through his service at the Department of Defense but also by virtue of his employment with several large defense contractors earlier in his career.

Dr. Gansler is presently a vice president of the Analytic Sciences Corp. [TASC].

The committee received testimony last week from the commanders of the procurement commands of each of the services. That testimony was a helpful overview of certain key procurement questions, such as quality assurance, revolving door problems, cost growth in weapons systems, and the time involved in procuring new systems.

I am certain that the testimony of our witnesses today will be a useful expansion of the testimony we received last Thursday. The final hearing in this series will be next Tuesday, when representatives of defense contractors will appear to discuss this same subject.

I welcome the members of the panel. I will ask Senator Nunn or Senator Bingaman, if they have an opening statement?

Senator NUNN. None, Mr. Chairman, except to say those two individuals are very distinguished, as you indicated.

I have to go to the House side, but I hope to be back to pick up on the testimony.

They both have a great deal of expertise in this area. I thank you for focusing on this question here and I thank the witnesses for being here.

Senator QUAYLE. Mr. Augustine, do you want to start?

STATEMENT OF NORMAN R. AUGUSTINE, PRESIDENT, MARIETTA DENVER AEROSPACE CO.

Mr. AUGUSTINE. Mr. Chairman and members of the committee, I am pleased to be able to share with you my views on the acquisition process.

I would like to submit for the record my formal statement and provide a capsulated version now.

Is that acceptable?

Senator QUAYLE. That is acceptable.

Mr. AUGUSTINE. In the world we live in today—in a technical world where the half life of technology tends to be about 3 to 8 years—it is really not acceptable to have an acquisition process that takes 10 to 20 years to put new equipment in the field. Of course, there have been a number of examples of the latter.

Similarly, I believe we can't afford to continue the cost overruns that we have suffered in the past because not only does that represent an inefficient use of the Nation's resources, but it also tends to undermine public confidence in those of us who have been asked to equip our Armed Forces.

I would like to emphasize before I begin that the views I am going to express are purely my own and don't necessarily represent a position of any of the organizations with which I happen to be associated.

Although in some respects the acquisition process is doing better today than in the past, I believe by any standard it is a greatly troubled process and obviously is a source of great frustration to most everyone who comes in contact with it, whether they be from industry or Government, including, I suspect, the Congress.

What I would like to do today is to offer for your consideration six actions we might take that I believe would considerably strengthen the acquisition process. I would like to touch on the

more general aspects of those actions and then I would be very pleased to answer any more specific questions you might have.

If one were to ask what is the fundamental underlying difficulty with the defense acquisition process, it would be tempting to answer with a quote from the report of the Defense Blue Ribbon Panel that Mr. Gil Fitzhugh ran a number of years ago.

You will recall one of the conclusions was that in effect everyone is responsible for everything and no one is responsible for anything. I would respectfully submit that that comment spills over to the Congress itself.

The six suggestions I would like to make are as follows:

First, consider the matter of estimating the cost and schedule of tasks that have never before been performed, namely, R&D tasks with which there is fundamental uncertainty. The process of estimating cost and schedule for such tasks is one that has many uncertainties, many risks.

It is very important to include recognition of those uncertainties when one lays out the resources with which to complete those tasks.

I am referring, of course, to the necessity of providing adequate reserves and contingency funds, time, and people to resolve difficulties that arise during the development process. Even in the best managed R&D programs, difficulties will be encountered.

One consequence of this, of course, is that initial cost estimates are uncertain.

On the other hand, I would hope that we might be judged by what our actual costs are rather than the initial estimate. If the initial estimate being large makes it more difficult to start programs, then so be it.

The second concern I would like to raise relates to that of program turbulence or instability. By that I mean continual changes in people, requirements, budgets, schedules, and other resources one needs to manage a program. I believe we should make it a matter of policy that change simply will not be tolerated at any level of management except for the most compelling of reasons—so that in the end we would be able to have a much healthier program.

Today, I believe it is an unfortunate truth, both in Government and in industry, at least in my own experience, that senior management spends a majority of its time trying to get programs started and trying to keep them alive after they are started—rather than focusing on what is perhaps the more important task, doing them properly, including doing them in an efficient manner.

The third point that I would cite concerns the matter of obtaining realistic, and by realistic, I mean generally conservative, cost estimates.

One way in which I think we could improve our capability to do this would be to create within the Office of the Secretary of Defense an extremely competent cost-estimating group to review the costs produced by program offices, bring to bear any other relevant information, and then be the sole group with the authority to provide cost estimates to be used in decisions whether to initiate new programs, whether to terminate programs, and to establish budgets.

The pressures to obtain approval of new programs and to win competitions are such that I believe one really cannot rely on the working level, either in industry or in the Government, to obtain truly conservative cost estimates at the outset of a program.

Fourth, I would encourage that we initiate only those programs that we can afford to fully fund, including adequate reserves for contingencies. I believe it would serve us well to make a prioritized listing for all those programs we believe are appropriate to undertake, wholly fund the ones at the top of the list and throw away the rest of the list.

If we run out of money, don't start the programs. If we start more programs than we can efficiently conduct, it is obviously a disservice.

The fifth point I would raise concerns the matter of establishing requirements for new systems. Generally my experience has been that the last few percent of capability one insists upon produces a disproportionate amount of the total cost. Even more disproportionately, the more problems one encounters in development and production programs.

Similarly the requirements process should take into greater consideration the cost of requirements being established. All too often requirements are established separately from the cost-estimating process. The two need to be very closely coupled.

Sixth is the rather obvious suggestion that we place greater responsibility and greater accountability on individual managers. I believe the principal distinction between managing in Government and in industry is that in the Government one operates principally by consensus and that there is relatively little discipline in the Government in preventing dissenting views from becoming counterproductive after a decision has been made.

By and large in industry, once a decision is made either to do or not to do something, everyone gets behind it. In the Government that certainly has not been my observation.

In summary, let me offer some specific actions one might wish to implement in support of these more general recommendations.

Certainly one could conduct more formal cost tradeoffs in the requirements process.

One should conduct greater examination of alternatives to starting new programs, particularly looking at product improvement of existing systems.

I would encourage that advocates of product improvement be invited to make formal presentations at DSARC's which are addressing initiation of new systems.

I would encourage the establishment in the OSD of the cost-estimating group I have described and that they be given responsibility to be the sole authority for cost estimates to be used in budgeting and program approval.

I believe it is important that we provide both schedule and cost reserves to permit our managers the freedom and flexibility to manage.

I would suggest that we make it much more difficult to start new programs and, similarly, once started, make it much more difficult to change them. One might even think of a system to place the burden of proof at the outset on those who want to start and, after

starting the burden of proof should be placed on those who want to stop.

One way to do this might even be to require a two-thirds vote in Congress to approve new programs and two-thirds to stop them. Today we live on a margin of very close votes which makes it almost impossible to manage with continuity.

I would encourage, and I think this is important, providing multiyear budget approval for individual programs.

Coming from industry, it might not be surprising that I would encourage the maximum use of the free enterprise system to provide goods and services for the Government.

I believe we should in general emphasize competition. I think we also need to realize there are limits to the appropriateness of competition in certain instances.

I would encourage that past performance of contractors be used in the selection of sources for future work. This, of course, needs to be done in an equitable manner.

I would encourage a career pattern be established wherein we obtain a large group of true professionals in the Government to manage development and production programs.

I would encourage that we keep managers in place within the Government at least through a given phase of the program. In other words, one program manager would stay through the entire development process. That may mean 6 or 8 years normally, I realize that is in conflict with the current promotional scheme, particularly in the uniformed military.

I believe that we need to pay Government employees wage packages that are competitive with those in industry. There is no replacement for having top talent in key jobs.

Last, I would encourage that when a program is begun we create what might be called a contract between the Congress, the OSD, the service, and the contractor generally outlining the cost, the schedule, and the performance parameters, including reliability, and as long as the program is managed within those bounds, the program be generally left to those assigned to manage it unless there is some very fundamental change in the threat or other circumstances.

Those are some of the suggestions I would offer for the committee's consideration. I am probably safe in saying that very few of my colleagues in industry would agree with all of those or even with many of them; and the same is true of many of my former colleagues in Government.

I have concluded, though, that in the defense acquisition process minor cosmetic changes are not of much use. We are far beyond that point. I think we need to address very fundamental tough issues.

Mr. Chairman, and members of the committee, I appreciate the chance to share these thoughts with you.

[The prepared statement of Mr. Augustine follows:]

Prepared Statement of Norman R. Augustine

IMPROVING THE DEFENSE PROCUREMENT PROCESS

Mr. Chairman and members of the committee; I am pleased to have the opportunity to appear before you to offer my views on the defense procurement process. If the United States is to employ military forces which may be smaller in number than those of our potential adversaries, it is crucial that we equip those forces in a manner which contributes to the overall strength needed to assure deterrence . . . both strategic and tactical. The capability to be sought is, to a considerable extent, dependent upon maintaining technological superiority and translating that superiority into forces in being. If, through strenuous effort, we achieve leadership in our laboratories only to lose that leadership in the process of fielding equipment, then our acquisition process has not served us well. In today's world, where the half-life of most pivotal technologies is of the order of 3 to 8 years, we can ill afford to take 10 to 20 years in the acquisition process . . . as has actually been the case for a number of important systems. Similarly, we cannot afford to suffer cost overruns which result in inefficient use of the nation's limited resources and which rightfully undermine the confidence of the public in those of us who are entrusted with the critical task of equipping our armed forces.

Before offering my comments I should emphasize that the views I express are purely my own and do not necessarily represent positions of any of the organizations with which I am associated. In fairness, I should also state my perspective. Mine is a view derived in part from service in various capacities in the Office of the Secretary of Defense and in several positions in a Military Department. However, I consider myself principally an industrial executive whose career in industry happens to have been punctuated by periods in which I was privileged to serve our government. My experience in industry has been with three large corporations and on Boards of Directors of several smaller firms. I have also been afforded the opportunity over the years to observe the acquisition process in a number of advisory capacities to the Army, Navy, Air Force, OSD, NSC, GAO, and NASA. During this service it has been my good fortune to have been associated both in government and outside with some of the most dedicated, talented individuals I have ever known. Yet, for some reason, the character of the acquisition process seems to be such that the whole is much less than the sum of the parts. This is not to say that the acquisition process has not had its successes: it has had many. It is probably fair to state that most nations would prefer to have U.S. equipment rather than Soviet equipment were they to have a choice. But the fact remains that although we are in some respects doing better today, the acquisition process is still greatly troubled and a source of frustration to most all who come in contact with it—whether in industry or government, including, I suspect, the Congress.

I would suggest that three principal ailments exist. The first of these is that many of the products of the acquisition process are exceedingly costly and, equally problematical, the actual costs of these products over the years have, according to my analyses, exceeded the estimated costs in constant dollars by an average of 52 percent. The second is that it seems to take an inordinately long time to develop hardware (and software); slightly over 8 years for the median major system. Third, it seems to be very difficult to adopt revolutionary—as opposed to evolutionary—system concepts. Too often we depend on symmetry of forces; "airplanes vs airplanes", "submarines vs submarines", "artillery vs artillery", when the principal effect of such a strategy may simply be to maximize the demand to incorporate extreme technological superiority within quantitatively outnumbered forces. These problems are exacerbated by the happenstance that burgeoning technology has no respect for Service boundaries.

What can be done to improve the defense acquisition process? I would like to offer for your consideration six actions which if implemented would, I believe, greatly strengthen our ability to field quality equipment on a reasonable schedule and at reduced cost. In fairness, I should note at the outset that it is relatively easy to identify the symptoms of problems of the acquisition process; only moderately difficult to discern the root problems; somewhat more challenging to promulgate realistic solutions; and incredibly difficult to make any of them happen. The latter is a consequence of the factor identified in the findings of the defense Blue Ribbon Panel of several years ago which concluded that in the acquisitiion process . . . "everyone is responsible for everything and no one is responsible for anything" . . . an accusation which, incidentally, I would respectfully submit spills over into the Congress itself.

First, I would suggest that we need to recognize that estimating the cost and schedule of tasks which have never before been undertaken (a fact of life in research and development . . . and to a lesser extent even in initial production) involves fundamental uncertainties and thus requires the management of risk. In this regard our present budgeting process is akin to asking a pilot to calculate the amount of fuel his aircraft will need if no unusual circumstances were to arise . . . and then forcing him to take-off with exactly that amount of fuel and not a drop more! Under that circumstance, one should be prepared for a crash.

My own studies of development programs in the past indicate that an estimate for which one demands an 80% probability that it will not be exceeded must be fully one-third greater than the corresponding "fifty-fifty" estimate; i.e., the estimate which itself has an equal chance of being underrun or overrun. This same study reveals that, in the aggregate, programs of the last two decades have been initiated at about the 10% confidence level in terms of funding, and that even in constant dollars it is necessary to increase initial cost projections by about a factor of 1.35 to have a fifty-fifty chance of meeting the estimates.

It will be noted that these observations are presented in probabilistic terms in recognition of the uncertainty which characterizes major development undertakings. The failure to recognize this statistical nature of cost estimating is at the very core of many of our shortcomings in the cost as well as schedule management processes. The situation can be compared to the problems encountered in forecasting weather. In spite of the sophisticated atmospheric models which now exist, weather forecasts are presented in probabilistic terms: "There is a 20% chance of rain tomorrow." Cost estimators would be well advised to emulate this practice of weather forecasters when they establish initial program cost estimates. That is not to imply that one cannot determine discrete cost figures for budgeting purposes as indeed one must; rather, it suggests that we need to recognize and quantify uncertainty and provide adequate management reserves to accommodate them.

A second solution I would offer is that we should provide greater stability to our programs. One of the dominant contributors to acquisition problems is program turbulence: changes in schedule, change in objectives, changes in funding, changes in people. Discipline must be instilled that once a decision has been made to conduct a program that decision cannot be reopened absent significant changes in one or more of the truly fundamental factors underlying the initial approval. Similarly, when technical problems are encountered—and they will be—it is frequently better to "tough it out" and solve those problems. The habit of terminating existing programs with known problems in order to initiate new programs with unknown problems is generally an exercise in self-delusion.

It should be a matter of policy that changes simply will not be tolerated at any level of management except for the most compelling of reasons. Authority to approve changes should, as an inhibitant, be placed at a very high organizational level (as, incidentally, should the control of reserves). Even apparently trivial changes, particularly in funding, have a way of cascading down through a prime contractor to a handful of subcontractors to hundreds or even thousands of vendors—wreaking contractual havoc at each and every step of the way.

Third, a highly qualified group of program cost estimators should be established in the office of the Secretary of Defense to review program costs and to provide the "official" estimates which are used in budgeting and program approval. This would represent a major increase in authority of the group now in existence and in some respects would parallel the function of central financial organizations in industry. Simply stated, the pressures to obtain program approval and to be selected as a winning contractor are such that making conservative cost estimates at the working level of both buyer and seller organizations is highly problematical at best. Contractors should be selected for cost-reimbursable contracts based on the Government's assessment of the contractor's "most likely cost"; not on the contractor's estimates—and, as previously stated, the former should include the impact of risk analyses.

Fourth, we should initiate only those programs which can be fully funded. It should be made very difficult to start new programs, requiring as a minimum that the benefits sought be substantial; that they cannot be realized through product improvement; that suitable commercial products are not available; and that funds can be provided to carry out the programs on an optimum schedule. Product improvement, in particular, will often offer an extremely attractive alternative to acquiring altogether new systems . . . particularly when uncertainties are given their due recognition.

Fifth, it appears appropriate that greater discipline be introduced into the process of establishing system requirements. The last few percent of capability typically

generate a disproportionate share of total system cost and, most assuredly, of the problems encountered. Requirements should be established not for individual programs in isolation, as is largely the case today, but rather for an entire military force within a prescribed overall budget.

Sixth, and finally, I would suggest that we need to place greater responsibility and accountability on individual managers. The greatest differences I have observed between government and industrial management practices are that the government operates principally by consensus and has little discipline in preventing dissenting views from becoming disruptive after a decision has been made. We need to provide management the latitude to manage. For example, under the present acquisition process, budgets are established, by and large, one to three years prior to their actually being executed, yet the technological and procedural uncertainties in the acquisition process are inconsistent with this degree of restrictiveness.

Reprogramming thresholds established by Congress could be liberalized substantially. The Undersecretary of Defense Research and Engineering should be provided a reserve that can be used to resolve short-term problems. The lack of suitable budgetary flexibility often produces large adverse cost impacts on a program caused by schedule slippages. It should be noted, of course, that to introduce such procedures constitutes a genuine commitment to delegating authority and responsibility—and a willingness to accept the risk entailed.

Before closing I feel obligated to observe that the sine qua non for major development projects is that they be led by competent, qualified, dedicated people. Once such individuals are found, it is counter-productive in the extreme to keep turning them from job to job, a practice which serves only to undermine both their understanding of the task to be performed and their accountability for its successful execution. Settling for the second-best qualified individual because, for example, it is not possible to obtain or keep the best qualified individual due to across-the-board salary restraints is a practice largely peculiar to government and a practice which no individual firm could afford to embrace if it is to survive. To accept an individual having 1% less likelihood of making the proper decision on a multimillion- or billion-dollar program in order to save ten or twenty thousand dollars a year in salary is simply not mathematically supportable.

In summary, the following specific actions are some of those I would offer for your consideration:

Conduct formal cost tradeoffs in the requirements process.

Before initiating new programs perform complete and formal analyses of alternatives based on product improvement of existing systems.

Advocates of product improvement should appear at DSARC'S.

Establish in the Office of the Secretary of Defense a cost estimating group with sole authority for providing the cost bases for program approval and budgeting.

Provide cost and schedule reserves in each program commensurate with the risk entailed. Aggregate these reserves and hold them at a high level in the management structure.

Make it difficult to start new programs and difficult to change them once started. (Perhaps require a two-thirds vote in Congress for initial approval for a new program and the same vote to subsequently change the funding.)

Provide multi-year budget approval of individual programs.

Utilize the free enterprise system to the maximum possible extent for the provision of goods and services. Emphasize competition (but recognize there are limits to its appropriateness).

Emphasize past performance in the source selection process.

Establish a career pattern in acquisition for military and civilian employees of the government . . . analogous to the Surgeon General or Judge Advocate General organizations.

Plan to keep program managers in place throughout the development phase of a program . . . but have a means of rapid reassignment should that become necessary.

Pay government employees wage packages competitive with the private sector . . . do not place arbitrary ceilings leading to compression in the key leadership ranks.

The above suggestions would most assuredly not all be greeted with enthusiasm by my colleagues in industry or, for that matter, my former colleagues in government. The fact is, however, that we are beyond the point where cosmetic changes will resolve the difficulties we together face. The record of the acquisition process has in fact improved in some areas—most notably and, perhaps most surprisingly, in cost estimating—however, much remains to be done. I am appreciative of the opportunity to share with you my views on some of the possible improvements.

Senator QUAYLE. Thank you very much, Mr. Augustine.
Dr. Gansler?

STATEMENT OF DR. JACQUES S. GANSLER, VICE PRESIDENT, ANALYTIC SCIENCES CORP.

Dr. GANSLER. Mr. Chairman, I make the same request. I have a slightly longer statement which I would like to summarize.

Senator QUAYLE. It will be inserted in the record. You may proceed.

Dr. GANSLER. It seems to me that excessive attention to the cost of wrenches and plastic stool caps is not going to solve the multibillion dollar problem of increasing defense costs nor provide the needed enhancement of our national security posture that was intended by the larger defense budget.

Basically, very broad changes are required in the way defense does its business. Without these organizational and procedural changes, and here I am talking about the military, the Office of the Secretary of Defense, the Congress and the defense industry, the problems are likely to increase, in my opinion.

The detailed micromanagement by Congress, fueled by the growing public frustration, will only serve to make matters that much worse.

Specifically, the four trends that need to be addressed, and I think are well known, in order to get our money's worth, start with the first being the concern that "the system" doesn't select, or develop and procure, the most cost-effective weapons.

It is the uncertainty I am talking about—the continuing debating, for example, over the priority of $40 billion for the 100 B-1's and 100 MX's—not whether they are the right systems, but uncertainty relative to their priority and the selection of them.

The second problem is continuing cost growth of individual systems, resulting in reduced quantities. That gets coupled into the third problem, lengthy acquisition cycle. The system now takes 12 to 15 years to get in the field.

The fourth is the growing problem in the industrial base, both in terms of economic efficiency and surge responsiveness.

I should start out by saying that reversing these trends will be neither easy or fast. The defense acquisition process is complex and very large. So you don't have simple, fast solutions to it.

Besides that, I would like to have the changes not destroy the current constructive processes of the DOD. It is generally acknowledged to be one of the best managed of the Government agencies. You simply have to compare the overruns on the Senate Office Building you recently built and those in DOD to see it.

Numerous quantitative studies show the same thing; overruns in DOD tend to be some of the lowest ones in the Government. Yet there is obviously no question there is a lot of room for improvement.

If we are going to get maximum capability with the increased dollars, we have to make significant changes. In my opinion, these changes are both urgent and mandatory.

The change has to begin with the recognition that there are two overriding issues that control defense procurement and they are not the ones traditionally thought of.

First, the critical decision in the procurement process basically is which weapons are going to be bought and how many of them, for example, more nuclear ships or more tanks. These choices not only dictate the current resource levels and allocations, but also our national security posture in the 21st century.

The second of the major issues is how we are going to budget or buy these systems, in either a stable, efficient fashion or with the continuous instability and uncertainty that now exist.

Presently weapons are selected and budgeted solely by the separate military services. The Army, Navy, Air Force, and Marines each choose the systems that appear best suited for their unique historical mission.

The services design their force structures as if they intend to fight independent land, sea, air and amphibious wars. In Grenada the different radios of the services prohibited their direct communication during the conflict.

There is no question that future battles will be fought with integrated forces, so weapons and force structures should be selected to complement one another and maximize their combined capabilities.

Unfortunately those that have the responsibility for planning how the war will be fought, the chairman of the Joint Chiefs of Staff and commanders of the Unified and Specified Commands, have little involvement in the defense acquisition process or little involvement in the selection process.

Thus, the responsibility for imposing some coherence upon the uncoordinated budget and procurement programs of the individual services has been assumed by the Office of the Secretary of Defense. That is what causes the huge growth in the OSD and; besides that, they get frequent "help" from the Congress.

Instead, people responsible for planning the war must be given a greater voice in determining overall distribution of resources, weapon requirements and system selection.

The chairman of the Joint Chiefs of Staff should be made responsible for developing a long-range, integrated defense resource plan—with appropriate guidance and oversight, of course, from the Secretary of Defense—and with the assistance of the CINC's as well as of the services and the Defense Agencies. Such a plan would tie weapons decisions to military strategy.

Currently, military strategy comes from the budget process; the proposed change would help direct defense resources toward the most effective systems and force structure. The services would then have full and unambiguous responsibility for organization, training, equipping and supporting the forces.

To implement this change, the staff of the chairman of the Joint Chiefs (the Joint Staff) would have to assume a role more independent of the services. It is essentially the one that President Eisenhower recommended in 1958.

The Office of the Secretary of Defense could then return to its proper emphasis on policy and oversight.

Overall, that is the first of the broad changes.

The second of the broad changes required to achieve the full benefit from our defense dollar is to introduce year-to-year stability in the Defense budget process.

The United States is one of the few nations, if not the only Nation, in the world to run its Defense establishment on an annual budget cycle. Single year Defense budgets encourage the services and congressional committees to seek annual reductions by stretching out procurement buys over several years.

This shortsighted measure causes expensive program disruption, forces contractors to produce equipment at an inefficient rate of production and causes higher unit cost and, thus, procurement of fewer systems.

The 3-year production stretchout of the F–15 aircraft resulted in a $2 billion increase in program cost; so 83 fewer aircraft were purchased.

Congress could make an important contribution to controlling procurement cost by adopting multiyear defense budgeting. Two- or 3-year budget cycles would introduce the stability that the contractors require to plan more efficient production runs and to lower unit costs of procured systems.

Furthermore, multiyear budgets would encourage DOD and the Congress to consider the long-term strategic implications of their budget and procurement decisions.

The other necessary congressional change in the defense budget process is to reduce the incredible number of committees involved and/or to hold concurrent hearings to get the same effect.

In 1983 the Defense Department witnesses testified on the 1984 budget before 96 committees and subcommittees of the Congress. These, as you know, are time consuming, both for the Defense Department and the Congress and they focus all the attention on the infinite details of the budget rather than on the policy and oversight that is required.

Their effect is to increase the instability in the process. It has been estimated that over 20-percent savings in DOD programs could be realized by introducing stability, over a time period, in the defense acquisition process.

Additionally, the Defense Department itself can achieve greater program stability through establishing realistic total program budgets and then living with them. I emphasize the realism as well as living with them.

For example, the Air Force is now trying to discipline itself to operate within the $20.5 billion figure for the 100 B–1 aircraft. The result of this discipline would be fewer programs, but each funded program would be far more efficiently run and a great deal more equipment could be procured for the same dollars.

Those are the two fundamental changes that I think are required in the selection process and in the budget process.

In my prepared statement I have also listed some detailed changes that I think would make a significant impact in terms of the procurement process itself—such as: enhanced Government management acquisition career paths; increased availability of alternatives during the acquisition process; and so forth. I won't read through that since it is in my statement; but the thrust is to shift

from directives and regulations to natural incentives—promotion, profits, competition, et cetera.

The last of the four broad changes, however, that I would like to have you consider is to improve the efficiency and effectiveness of the industrial base itself. Here I believe that the principal requirement is increasing the visibility into the health and responsiveness of the industrial base.

The United States is the only nation in the world which does not treat its defense industry as a vital national resource. I believe if this perspective were taken, then—for each critical sector of the defense industry—visibility would be provided on such conditions as: competitive market forces, labor stability, bottlenecks, viability of the lower tiers, capital investments, long-term R&D, capacity utilization, and surge capability. These do not now have visibility.

As a complement to that visibility, I would like to see the United States better integrate industry's preparedness and responsiveness into our national security strategy; thus taking advantage of the national strength of our economic base as part of our national security strategy.

In conclusion, it again must be emphasized that it will take time and a great deal of effort to make these necessary changes. There are no quick and easy fixes.

Today, many on Capitol Hill and the Pentagon are attempting to achieve acquisition reform in a piecemeal fashion—from spare parts regulation and programs, through a growing number of detailed procurement laws and regulations.

Often such measures are desirable, although their implementation is frequently counterproductive, but they obscure the requirement for fundamental change in the way Defense does its business.

If the four broad thrusts described herein are accepted and implemented—we might term them: "JCS reform," "budget reform," "procurement reform," and "industrial revitalization"—the combined effect of these will, over time, result in the needed improvements in the defense acquisition process and they will simultaneously enhance the credibility, with both the Congress and the public, of DOD management.

Our Nation's security requires these changes and the taxpayers deserve them.

Thank you.

[The prepared statement of Dr. Gansler follows:]

PREPARED STATEMENT OF DR. GANSLER, VICE PRESIDENT, ANALYTIC SCIENCES CORP.

GETTING MORE FOR OUR DEFENSE DOLLARS

Headlined news accounts of overcharging for spare parts have led to widespread demands for improved management of defense procurement. Congress has responded with a profusion of new legislative "fixes," as well as more and more detailed and frequent, dollar-by-dollar reviews of each and every defense budget line item. However, excessive attention to the costs of wrenches and plastic stool caps will not solve the multibillion dollar problem of increasing defense costs nor provide the needed enhancement of our national security posture intended by the larger defense budgets. Much broader changes are required in the way Defense does its business. Without basic organizational and procedural changes—in the military, the Office of the Secretary of Defense, the Congress and the defense industry—the problems are likely to increase; with the detailed, micromanagement by Congress—fueled by growing public frustration—only serving to make matters that much worse.

Four adverse trends need to be addressed if we are to simultaneously "get our money's worth," strengthen our national security and develop public confidence in the DOD: (1) Increasing concern that "the system" does not result in the selection, development and procurement of the most cost-effective weapons (for example, the continuing debate over the priority of the $40 billion for the 100 B-1s and 100 MXs); (2) the continuing cost growth of individual defense equipment (and the resultant reduced quantities); coupled with, (3) the lengthening acquisition cycle (so that new systems often take 12 to 15 years to get into the field); and finally, (4) the growing problems in the defense industrial base (both in terms of economic efficiency and surge responsiveness).

Reversing these trends will be neither easy nor fast. The complexity and magnitude of the defense acquisition system doesn't lend itself to simple solutions. Additionally, the changes must be such that they do not destroy the current, constructive acquisition practices of the DOD—generally acknowledged to be one of the best managed of all the government agencies. (A comparison of DOD overruns with those on the Rayburn House Office Building, or the Hart Senate Building, or almost any other large government program, makes this case quite clearly—as have numerous, detailed analyses.) Nonetheless, there is little question that there is much room for improvement, and if we are to get the maximum military capability for the increased defense dollars, the need for such improvements becomes urgent and mandatory.

Change must begin with the recognition that two overriding issues control defense procurement costs: first, which weapons are bought and how many of them (more nuclear ships or more tanks, more intercontinental missiles or more antitank missiles)—such choices not only dictate current resource levels and allocations, but also our national security posture into the 21st century; and, second, how we budget and buy these multibillion dollar weapon systems—in an efficient, stable fashion or with continuous instability and uncertainty.

Presently, weapons are selected and budgeted solely by the separate military services. The Army, Navy, Air Force, and Marines each choose the systems that appear best suited for their unique historical missions. The services design their force structures as if they intend to fight independent land, sea, air, and amphibious wars. (For example, in Grenada the different radios of the services prohibited their direct communication during the conflict.) Future battles will be fought with integrated forces, so weapons and force structures should be selected to complement one another and maximize the combined capabilities of the Armed Forces.

Unfortunately, those who have the responsibility for planning how wars will be fought—the Chairman of the Joint Chiefs of Staff and the Commanders of the Unified and Specified Commands (CINCs)—have little involvement in the defense budget process or in the weapon requirements and selection process. Thus, the responsibility for imposing some coherence upon the uncoordinated budgets and procurement programs of the individual Services has been assumed by the Office of the Secretary of Defense—with frequent "help" by the Congress. Instead, the people responsible for planning for war must be given a greater voice in determining overall military resource distributions, weapon requirements and system selections. The Chairman of the Joint Chiefs of Staff should be made responsible for developing a long-range, integrated, defense resource plan—with appropriate guidance and oversight from the Secretary of Defense, and with the assistance of the CINCs, the services, and the defense agencies. Such a plan would tie weapon decisions to military strategy and help direct defense resources toward the most effective systems and force structures. The Services would then have full (and unambiguous) responsibility for organizing, training, equipping and supporting the forces. To implement this change, the staff of the Chairman of the Joint Chiefs would have to assume a role more independent of the Services (as President Eisenhower recommended in 1958), and the Office of the Secretary of Defense could return to its proper emphasis on policy and oversight.

The second broad change required to achieve the full benefit from our defense dollars is to introduce year-to-year stability into the defense budgeting process. The United States is one of the few nations in the world (if not the only one) to run its defense establishment on an annual budget cycle. Single-year defense budgets encourage the services and the congressional committees to seek annual reductions by "stretching out" procurement buys over several years. This shortsighted measure causes expensive program disruptions and forces contractors to produce equipment at inefficient rates of production—thus causing higher unit costs and the procurement of fewer systems. For example, the three-year production "stretch-out" of the F-15 aircraft resulted in a $2 billion increase in program costs. Eighty-three fewer

aircraft were purchased than what would have been possible with the dollars actually spent.

Congress could make an important contribution to controlling procurement costs by adopting multi-year defense budgeting. Two- or three-year budget cycles would introduce the stability necessary for contractors to plan more efficient production runs and lower unit costs of procured systems. Furthermore, multi-year budgets would encourage the DOD and the Congress to consider the long-term, strategic implications of budget and procurement decisions. (Simply making the two outyears of the concurrent budget resolution binding—as "nominals," with alternatives allowed for Presidential or committee submittals—would introduce a major element in the required stability.)

The other necessary congressional change in the defense budget process is to reduce the number of committees involved (and/or hold concurrent hearings). In 1983, Defense Department witnesses testified on the 1984 budget before 96 committees and subcommittees; 1,306 witnesses provided 2,160 hours of testimony. These redundant hearings are time-consuming (for both Defense management and for the Congress) and focus all of the attention on the infinite detail of the budget, rather than on the policy and oversight required. They also introduce incredible instability, and its resultant uncertainty. It has been estimated that savings of 20 percent could be achieved—after a few years time—by stabilizing the Department of Defense budget.

Additionally, the Defense Department itself can achieve greater budget stability through establishing realistic total program budgets and living with them. (For example, the Air Force is now trying to discipline itself to operate within the $20.5 billion figure for the 100 B–1B aircraft.) The result of this discipline would be fewer programs, but each funded program would be far more efficiently run and a great deal more equipment would be procured for the same dollars.

These fundamental changes—first, improved weapon selection and resource planning and, second, greater defense budget and program stability—are the essential elements of any reform in the defense acquisition process. However, to be fully effective, two additional areas must be addressed. First, procurement changes that emphasize techniques—incentives—that encourage lower-cost weapon systems. Some specific suggestions here are: (1) enhanced government acquisition-management career paths; (2) reduced program risks and schedules through separate development and testing of advanced subsystems (the weapon system modification approach); (3) greater presence (and funding) of continuous alternatives (including more competitive dual-sourcing); (4) a shift in profit policy towards awards (in future years' contracts) for lower actual cost achievements on prior contracts; (5) allowing the Service and the specific program manager to keep and use (either for greater quantities or improved performance) any money saved (instead of losing it, as is now the case); (6) greater DOD use of "baselining" (internal, high-level "contracts"—between Service management and the program office—on performance, annual budgets, quantities, total dollars, schedules, etc.) to provide program long-term stability; (7) "hedged" funding for development and demonstration of non-traditional use of new technology to improve military effectiveness (especially when the application cuts across historical Service roles and missions, and thus would have great resistance to funding); and (8) greater use of "design-to-cost" techniques (wherein the last few percent of extra performance is traded off for higher reliability and much lower unit costs—so that the number of units can be much greater, for the same dollars).

Implementation of procurement changes such as these will make a major difference in the way Defense business is done. It will shift the management emphasis from regulation to natural incentives e.g., competition, profit, promotion and accountability. It is believed that these can be far more effective.

The fourth of the broad changes required to improve the efficiency and effectiveness of the Defense acquisition process is that of raising the DOD's visibility into the health and responsiveness of the industrial base. The United States is the only nation in the world which does not treat its defense industry as a vital national resource. If this perspective is taken, then for each critical sector of the industry visibility would be provided into such conditions as: competitive market forces, labor stability, bottlenecks, viability of the lower-tiers, capital investments, foreign dependency, long-term R&D, capacity utilization, surge capability, and integration of civil and military production.

As a complement to this visibility, the United States should better integrate its industrial preparedness and responsiveness capability into its national security strategy. This would provide our nuclear and conventional force posture with a third leg (an industrial surge capability)—one in which the United States clearly

has greater potential than the Soviet Union, and one that is of growing importance in an age of nuclear parity.

In conclusion, it again must be emphasized that it will take time and a great deal of effort to make these necessary changes. There are no quick and easy fixes! Today, many on Capitol Hill and the Pentagon are attempting to achieve acquisition reform in a piecemeal fashion—from spare parts regulation and "programs," through a growing number of detailed procurement laws and regulations. Often such measures are desirable (although their implementation is frequently counterproductive), but they obscure the requirement for fundamental change in the way Defense does its business. If the four broad thrusts described herein are accepted and implemented—we might term them: "JCS reform," "budget reform," "procurement reform" and "industrial revitalization"—the combined effect of these will, over time, result in the needed improvements in the Defense acquisition process and they will simultaneously enhance the credibility—with both the Congress and the public—of DOD management. Our Nation's security requires these changes and the taxpayers deserve them.

Senator QUAYLE. Thank you very much. I will just observe that both of you mentioned a multiyear budget as one of the imperatives in trying to get more stability in the procurement process. I support that. I can tell you there is a growing consensus here in the Congress to move to at least a 2-year budget process.

What I would like to see attempted, at least on an experimental basis, is to try and push DOD to send up a 2-year defense budget.

I have another responsibility these days chairing a select committee to look at the whole committee structure here in the Senate and the allocation of Senators' time. It is almost a universally held opinion that we ought to move to a biannual budget. That would certainly be a big step forward.

I think your testimony here today and your remarks point out that problem. I just happen to think that the multiyear budget is absolutely imperative and is one of the steps that we must take as a Congress.

Dr. GANSLER. You do have in your concurrent resolution a 3-year budget. You just don't make the 2 out years binding, so they are ignored. If they just become the nominals for the Presidential submittal, you would in effect have some stability from that action.

Senator QUAYLE. Right now we have a defense authorization bill that has not passed the Senate. We have 11 days to go to the end of this Congress and we don't even have a defense appropriation bill passed.

The big question is whether we are going to get defense appropriations passed or hang by our thumbnails with a continuing resolution every year.

The area of defense acquisition is so big it almost defies efficiency. Last week this panel heard from the heads of the service procurement commands. We have industry coming in as another panel next week.

Having been in Government and industry you both highlighted provisions that we passed in our defense authorization bill this year in response to spare parts and warranty issues, about 40 pages of legislation.

I think these provisions were reasonable and I think we moved in the right direction, although I don't know how the implementation phase will come out. Given the amount of procurement legislation recently a lot of people claim that we are actually seeing the acquisition process lengthened instead of shortened.

This is certainly not what we are working toward as far as efficiency is concerned. I wonder if you both might spend a moment, expressing what areas you feel the Congress ought to focus on regarding defense procurement.

Should we look at trying to shorten the acquisition process?

I think it is probably inherent in the nature of Congress' business that we are going to respond to cost, and cost is very important in the out years because of the deficits that we have.

Cost growth gets a lot of publicity.

We have 17 million procurement actions a year. There is no way you are going to get around making a mistake in a system that size. If you hold it down to 1 percent, that is 17,000 mistakes.

I wonder if the two of you might help us try to really do the country a service and indicate what this committee ought to dig its heels into and look at.

What would you recommend? Please be focused. You know the nature of Congress and how we have to respond to constituents' pressure.

Where should we be going?

Mr. AUGUSTINE. The single most important thing we can do to improve the acquisition process is to obtain quality cost estimates at the outset of a program, including reserves for unknowns, and provide the funds to cover those unknowns.

I believe if we did that, we would remove the major thorn in the side of the acquisition process—which is poor cost control and poor cost estimation, As a bonus, I believe we would solve a good part of the schedule problems that you cite, Mr. Chairman, because most of the schedule problems occur in turn because of the lack of funds to solve unforeseen technical problems.

If we could provide adequate funds before we begin programs—or else don't begin them—I think that would solve many of the problems in the procurement system.

Senator QUAYLE. Do you want to elaborate on how we are going to get quality in cost estimating?

You are talking about the front end of the system?

Mr. AUGUSTINE. Exactly.

Senator QUAYLE. What should we do differently?

Mr. AUGUSTINE. Let me say that what we are doing now is dependent to a large degree on contractors which are trying to win contracts and on services which are trying to obtain approval for programs.

It is very difficult when you are in either of those positions to be truly conservative. I don't mean to imply there is dishonesty because I don't believe there is. There is uncertainty in what things are going to cost. The degree we are willing to accept risk may change the cost estimate by a factor of two in an R&D program.

I think the way we have to make cost estimates in the future is to have an independent group which has only one responsibility in life—and that is to make quality cost estimates.

Senator QUAYLE. In OSD?

Mr. AUGUSTINE. In OSD, and that group would be measured solely by the quality of the estimates it makes. If the estimates are realistically high and because of that the programs don't get started, then that is probably appropriate.

Now, that cost-estimating group has to be responsible, obviously, and exercise a great deal of judgment; but I think if one were to do that, it would be an enormous contribution.

I might say that much as I support multiyear budgeting, if we do go to a 2-year appropriation cycle and don't allow margin for unforeseen events, we will be in worse shape than we are today because we will have left no flexibility. Let's say a problem occurs the day after the Appropriation Act is passed. It will be 2 years before there is any latitude to solve that problem with additional funds.

It is, thus, very important we have a high fidelity cost estimate at the outset. I think we can get it.

Senator QUAYLE. What should such a group or board look like? Who should be on it? Should they be civilian personnel, or military personnel responsible to the Secretary of Defense?

Mr. AUGUSTINE. They will be professionals in the cost-estimating arena, either military or civilians.

I would think one would want some engineers on the group because if one is to make a reasonable estimate, one has to understand the detail of how a system operates.

It is very easy to perform a disservice by operating too much at the surface and not understanding the difference, say, between a mechanically scanned radar and a phased array radar.

An economist might completely miss the point in trying to make a cost estimate. You need people with hands-on experience and a lot of scar tissue.

Senator QUAYLE. Would it be best to have this as a statutory creation?

Mr. AUGUSTINE. One could do that. I don't think it is necessary. I believe it is within the wherewithal of the Secretary of Defense to do what I have suggested.

We have the beginning of such a group today, but it falls short in two areas. One is its breadth of hands-on experience. Second, we don't listen to it very well.

Senator QUAYLE. What group is that?

Mr. AUGUSTINE. This is a group in OSD, PA&E that does cost estimates. It is called the cost analysis improvement group [CAIG].

I believe if we could couple that single action with multiyear budgeting, we would see an enormous improvement in cost control and schedule maintenance and I believe produce systems that do what we promised.

Senator QUAYLE. Is the composition of the CAIG appropriate now?

Mr. AUGUSTINE. I would fault CAIG for being too heavily comprised of economists as opposed to hands-on builders of hardware and software.

Senator QUAYLE. Dr. Gansler, do you want to answer my question?

Dr. GANSLER. I will take a slightly different approach. I would guess if you have to pick one thing that dramatically changes the way we do business, it is to introduce stability into the acquisition process. So that actions you take ought to relate to how you impact or don't impact the stability of both programs and budgets.

If one shifted to where you want to be, which is to have a longer term perspective in the acquisition process, then to get there, you need to have long-term plans, military as well as fiscal; military in order to select which are the best systems and fiscally constrained in order to make those military plans realistic.

What that would require in terms of things you can do is the cost realism that Mr. Augustine talked about, but not just on individual programs which you would need to make in terms of estimates and then put them into the budget, but also in terms of what you are likely to have for the top line; because in order to arrive at a set of what are the programs we are going to have in the next 5 years, you need realistic estimates of a total multiyear budget and realistic estimates for each of the programs within it.

That would address the issue you raise about how to speed up the acquisition process.

A study was done about a year and a half ago called "The Affordable Acquisition Approach," which looked at the last 30 years of the acquisition process in the Air Force.

What it found was that the original program plans were relatively short and good, but those were not lived up to. Continuously, both the military and the Congress were stretching out the programs. So that each time when the top budget line goes down or program cost goes up, in order to live within the budget, you continued to stretch out the program.

The reason we end up with the 12 to 15 years for development of some programs is not because we planned them for 12 to 15 years; it is because we planned them for 6 years and they got stretched to 12 years.

If you could have realistic cost estimates for programs and have only high priority programs you agree you should have—a very difficult decision to decide these are the right programs—having made these decisions, then live with them.

There is a way to do that in the Congress, which would be to only review the programs at the time they are initiated, say at full-scale development or production. You need not review them every 6 months or every year.

You would review them, particularly in the authorization process, at milestones in the same way that the Defense Department does it in the acquisition process; but the Defense Department reviews—and revises—them in the budget process much more frequently because the Congress does.

What you need basically is a commitment to the dollars and to the desired performance, and a commitment to the acquisition strategy—whether there will be multiple contractors or one—than to live to that plan.

That should reduce dramatically the cost overruns, the schedule slippages, and a great deal of the debate that goes on now every 6 months about whether we have the right program in the budget in the first place.

I believe trying to address that stability in the budget and procurement process would have the most dramatic effects.

There are institutional changes that would have to be made in order to do that, and the multiyear budget would certainly help.

Contractual baseline commitments that are being tried by the services now on programs would certainly help. Also, the Congress would have to live with the commitments they have made. That would essentially introduce the stability that would then reduce the cost, shorten the schedule, and get us more of the equipment we need.

Senator QUAYLE. You are basically saying that if we do quality cost estimating up front, that that is a good beginning to really focus on and get a handle on the degree of commitment in Congress?

Dr. GANSLER. It is necessary, but it is not sufficient. I would argue that we frequently do a good job of estimating what the costs are. Then we don't put that in the budget or Congress says: "What is this contingency money you put in there? You mean you are not going to be able to manage it without a problem?"

So, we take that cut and problems do occur. It is a high-risk development program and the program gets stretched out in order to fit in the budget; or it comes from the other direction, that the dollars expected are not as large as they were anticipated to be.

That squeezes the program and it gets stretched out. For a variety of reasons that change the initial conditions. I agree the initial condition is important. You must have a realistic cost estimate and good commitment to that program.

You can't then stop and go away and say, "Fine, that is a good program. Come back in 12 years and I will deliver it."

The history of the acquisition process is that there is continuous turmoil and change in that process in terms of the budget side, technical problems, and so forth.

You have to live within that in order to maintain the stability that I am arguing for.

Senator QUAYLE. My time is up, so I will yield to Senator Bingaman.

Senator BINGAMAN. Thank you very much.

Let me ask a few questions that occurred to me from your testimony.

Mr. Augustine, in your sixth point you state that we need to place greater responsibility and accountability on individual managers.

In your view, do the people we put in positions of managing these programs have the necessary training and qualifications to do these jobs?

Mr. AUGUSTINE. I would say that in many cases they truthfully don't. We do much better than we did 10 years ago, but it is not uncommon for someone who has been commanding a ship at sea or a division or squadron to suddenly be placed in a position where they have the job of overseeing the work of an industrial giant.

It is pretty tough to be equipped to do that when one comes out of a military operating force. It would be much the same as taking somebody like myself and putting them in charge of an air wing; it would be a terrible mistake.

I think we would need much more training for those people before we put them on the firing line.

Dr. GANSLER. The training is part of it. Experience, however, is an equal part of that training, if you will. It is not exclusively university or defense management college.

It is also the number of years that these future program managers will have of acquisition experience. The data show that in many cases the Army has the least amount of this because of their traditional career paths.

You have people running multibillion-dollar programs with under 2 years of acquisition experience—on the average. I think that goes along with the training, but I also think that a principal cause of the problem in the professional area is the promotion potential.

That is especially the case in the military. If we can't promote people into general and flag officer rank from the acquisition side, you are not going to find the top people going that way. Then they won't gain their experience and they won't go for this training, because if they are going to get promoted as being operators versus managers, they know what the signals are.

They are not going in the acquisition direction. The career path enhancement would help a great deal to have managers stay longer in their positions and get more experience.

Senator BINGAMAN. Secretary Lehman indicated recently he is going to require people to try to stay 4 years in managing particular programs. Is that something that you think is a step in the right direction? Is that something the Air Force and Army should be doing? What are your thoughts on that?

Mr. AUGUSTINE. Ten years ago the median job duration for a program manager was something like 18 months. By that standard, 4 years is an enormous improvement. In fact, about two and a half times improvement. It is clearly a step in the right direction.

The truth is though that the average program today takes 8.3 years to get through R&D. Even if we get the cycle to where I think it should be, it would take about 6 years.

So, it is a step in the right direction. But we are still not there.

Senator BINGAMAN. Let me ask Mr. Augustine, in your testimony you make reference to the need for us, perhaps, to build in some additional obstacles to starting new programs and additional obstacles to changing those programs that are commenced.

Your suggestion is that we require a two-thirds vote in Congress for initial approval of a new program and the same vote to subsequently change the funding.

I have great hopes for my colleagues' efforts here on changing the rules of the Senate, but if we don't get those rules changed and we can't get the two-thirds vote requirement built into our rules up here, is there something else you can think of that we could require that would build in more opposition to our just approving new starts without really giving them adequate consideration or to our approving changes in existing programs?

Mr. AUGUSTINE. The kind of thing that comes to mind as a first step is one of authorizing the development and production of a program only once.

You could authorize development for so many years and authorize production for so many years. That is one step.

A better step, which is probably far beyond the art of the possible, would be to combine the authorization and appropriation processes.

Similarly one could combine the budgeting and program review processes in the Defense Department, or have a combined service staff and service secretariat to reduce the number of opportunities to make changes.

At the present time it takes an R&D program a minimum of 18 votes by the Congress each year to obtain funds. A typical program takes 8 years to get through the process. It only takes one or two votes to destroy that program. The vulnerability is enormous.

One thing you can do is reduce the number of times the program comes to bat before the people who might change it.

The other part of your question, which I think is of equal importance, is that we shouldn't start programs that are marginal. I think one reason we start marginal programs comes back to the matter of not properly accounting for uncertainty, for risk, for the possibility of problems.

One tends to compare in-hand systems about which you know the problems with new systems for which you allow for no problems. The new system almost always appears to be much more attractive than it perhaps should.

I think when one provides more realistic estimates of cost and difficulties of developing new systems and then forces a legitimate comparison of upgrades to existing systems as an alternative, one very often will elect to improve existing systems.

Dr. GANSLER. I think there is not a clear understanding probably in the DOD and certainly in Congress about the fact that for our major weapon systems you really make only one major decision and that is the initial full-scale development decision.

The military services have never, to my knowledge, canceled a program after that point on their own. The Congress has very rarely, and even some of those had trouble keeping the cancellation, like the B–1, is back and others.

So, it is almost a rare occasion, after the commitment to full-scale development is made, that a program doesn't continue on through production.

That is why I agree with Mr. Augustine, it is an important single decision and it is viewed unfortunately as though people are reviewing the program decision every year. You are not doing that. All you are doing is messing it up every year by changing it and stretching it out.

The critical change you could make would be recognition of the importance of a commitment to full-scale development. The way to change it is to reword the question. The question should be why shouldn't we continue the way we are doing right now—through full-scale development and production as contrasted with the question: Should we now fund next year's dollars and at what level?

In fact, it is worse when we try to introduce another phase called test and evaluation which stretches it out even more. You have to view it as though you are making a single decision to go ahead at full-scale development initiation, and all concurrent testing and evaluation is to confirm that decision.

The authorization process is supposed to be to authorize the program. As long as the program is continuing on plan and achieving its financial and technical objective, it should be assumed to continue.

Senator BINGAMAN. Let me ask Dr. Gansler one additional question.

You make reference in your prepared comments to the growing problems in the defense industrial base in terms of economic efficiency and surge responsiveness.

Can you elaborate a bit as to what you are referring to there, what you see as those growing problems?

Dr. GANSLER. Yes. At the end of 1980 there were a series of four reports that came out just before the current administration, the November-December time period. The House Armed Services Committee had a report entitled "The Ailing Industrial Base" in which they highlighted a number of the problems.

There was a similar set of data that came out from the military. General Slay of the Air Force Systems Command put together a report on the defense industrial base problems, and also the Defense Science Board came out with their report. Dick DeLauer was an active part of that. Bob Farkman, of Lockheed, chaired it.

Then I had my own book on the defense industry. All four of these coming from the military, the Congress, independent research and the giants of the defense industry on the Defense Science Board—all said there were serious problems in the defense industry.

In terms of its ability to surge, for example, a "warm" aircraft production line, today would take about 3 years to go from its current production to a significant increase in output. That is not very useful from a military viewpoint to have that kind of lag.

In terms of its economic efficiency, the questions were capital investments, capital utilization and labor stability.

The biggest problem highlighted in all these reports was the problem of the lower tiers of the defense industry, not the big prime contractors; but the disappearance of the critical parts suppliers—for example, the one or two firms making traveling wave tubes—critical components that are needed across the board in our defense business, either coming now from offshore—and a growing number are—or in fact having very limited numbers of suppliers and not doing a lot of advanced research and development at the lower tier level.

It is primarily the problems at the lower tiers combined with lack of responsiveness and lack of efficiency to which I was addressing myself.

One of the things highlighted in all these studies was the need for visibility into these problems. I am convinced that the Defense Department is excellent at managing things that they have visibility into, but if they have assumed there is not a problem there and don't have data to show it, then they are not going to be able to take corrective action.

Senator BINGAMAN. Thank you very much.

Senator QUAYLE. Thank you, Senator Bingaman.

Dr. Gansler, in your testimony you talk about overhauling the JCS.

Dr. GANSLER. I didn't exactly use those words.

Senator QUAYLE. The Eisenhower recommendation, I believe.

Dr. GANSLER. In terms of the staff, yes.

Senator QUAYLE. I wonder if you might expand on that a bit. I think you talked about the Chairman of the JCS coming up with an overall plan on how we should select weapon systems.

Could you compare what you think we should be doing with how we do it now?

Dr. GANSLER. It has two aspects to it, both the military side and the resource side.

On the military side what one would like to see is much more involvement of the CINC's in trying to determine the balance between, say, readiness and modernization. They are the spokespeople for the readiness side.

If they are going to be heard at all—and they are just starting now to take part in some of the Defense Resource Board meetings, but without really adequate staff to do so—if they are going to be heard, they are going to be heard through the Chairman.

So, the military aspect of it is, first of all, trying to establish long-range strategy and then tying resources to that—and part of that is the readiness versus modernization question.

These ties of resources to strategy, to my mind, don't get addressed in the current system because the current system has the services independently coming up with budgets and those budgets are geared toward their historical missions of air, land, sea, and amphibious warfare as contrasted to the fighting of a war in central Europe that the CINC might have as his perspective; or, I believe, that the Chairman might have.

If you are going to have the Chairman coming up with military advice, integrated military advice, it has to, in my opinion, not be something that has total consensus, because you are going to naturally have differences of opinion.

The current joint staff system within the Joint Chiefs "requires" everyone to sign off and agree to everything; which means you really don't get any differences bubbling up through the system at all. What Eisenhower recommended, and by the way, this is not particularly something I have been pushing as much as people who know a lot more about it than I do, such as Gen. David Jones who was Chairman of the Joint Chiefs and Gen. "Shy" Meyer, former Chief of Staff of the Army, they have documented their views in this area. I am reflecting their views as well.

What you need to have and what I believe the Congress and certainly the Secretary of Defense and the President need is an integrated military view, but one that is not simply everybody agrees to it so that, therefore, it has no arguments to it.

The Chairman needs to be able to come in with his opinion and the heads of the other services need to come in with their opinions. It is the Chairman who would then, and that is Eisenhower's recommendation and also Jones and Meyers, have the staff of the Joint Chiefs under the Chairman.

Now, the staff reports simultaneously to all the Joint Chiefs.

Senator QUAYLE. How would you propose to get more CINC involvement in that process?

It seems to me you will get the professional staff of the Chairman, not necessarily the CINC's. I think that is an important observation, that we ought to get the CINC's. They are the one on the firing line. They are going to be called upon to do it if the balloon goes up.

Dr. GANSLER. The CINC's report to the Chairman. If the Chairman is putting together the resource budget, then he will be representing the CINC's in that integrated resource plan.

Right now the services put together the resource plan and the CINC's aren't in that loop. It is the subordinate commands acting through their services that give their input into the service and the service comes in with their budget, the budget going to OSD. There is not an integrated military plan that is provided.

The OSD has to put it together. If the Chairman of the Joint Chiefs with guidance from OSD and with concurrence from OSD for the overall integrated plan would then automatically be considering what the CINC's need and what the service input is, he would be taking the CINC's input much more than they are now listened to.

By the way, in order to do that, the CINC's would need the sort of staff you have recently provided for the Chairman in terms of the P&E type analysis capability. They need a resource analysis.

I think it is important to emphasize—I know what the reaction will be—that there is no way the CINC's and the Chairman can get into the details of the budget. The point is you are not going to get into detail. You will get a much more macroview. That is what is needed.

You need to tie strategy to resource. You need a macroview.

Senator QUAYLE. Do you think it is feasible to tie strategy to resources?

Dr. GANSLER. Absolutely.

Senator QUAYLE. Why?

Dr. GANSLER. Because the resources come from the four services into OSD.

Senator QUAYLE. Do you think that is the basic problem, resource requirements come from the services rather than from the CINC's?

Dr. GANSLER. Not from the CINC's, rather from a single point since the Chairman of the Joint Chiefs has inputs from the CINC's as well as inputs from the services and guidance from OSD.

Senator QUAYLE. Mr. Augustine, do you have any thoughts on this?

Mr. AUGUSTINE. I would tend to draw an analogy between the current process and the operation of an industrial firm. In the current governmental process the corporate staff puts together the budget and the resources for the operating divisions.

I know of no successful corporation that does that.

In carrying the analogy a little further, our situation is really one where, in the case of the JCS as it is structured today, the operating divisions have to have unanimity before they take their case forward.

So, we have essentially a JCS that finds it very difficult to reach a position on controversial issues because each of the services has its own view and veto. So, they can't get unanimity in the JCS.

My own experience while I was in the Office of the Secretary of Defense was that on the really tough issues we couldn't get a clear-cut recommendation out of the JCS. So, OSD made the decisions.

As a consequence, you had civilians making decisions that would have been much better made by people in the military with operating responsibility.

Senator QUAYLE. You do agree we ought to have more input from the CINC's?

Mr. AUGUSTINE. Very much so. I would endorse the view that General Meyer and General Jones have expressed in terms of having the Chairman be the individual link in the chain of command and having him direct the Joint Staff.

The Chairman would have a deputy that is a four-star officer. Some of those suggestions are very appropriate.

Senator QUAYLE. There has been discussion over in the House on further limitations regarding the so-called revolving door problem.

Do you think we need more limitations? Do you think we have enough provisions or do you think we have a problem?

Mr. AUGUSTINE. You have two revolving doors here at the witness table.

Senator QUAYLE. So, I have a couple of good examples here.

Mr. AUGUSTINE. It is a very difficult question. I have thought about it a good deal.

My experience has been that there is a lot of talent that I served with in the Government that came from industry; a lot of talented, and very dedicated people. I saw virtually no cases where I felt those people made use of their position to further the company they once were serving.

I also don't believe you can legislate integrity. I don't know how you can do that. If people break clear laws, they should be punished with the full measure of the law. Beyond that, I think you have to rely on the decency of people.

There is one alternative used in some countries which do not have people come through the revolving door and come into Government. They build a career cadre within the Government, perhaps analogous to the Foreign Service in the State Department, and are dependent totally upon that cadre.

I think if you pay enough and make the job attractive enough to where you can draw a truly qualified staff at a high level, you can do that. You do lose the inability to infuse new ideas and new perspectives.

I think my experience in industry served me very well in dealing with industry when I was in the Government. However, I don't think that is absolutely essential.

Senator QUAYLE. My question was, do you think we have a problem now with this so-called revolving door problem?

Mr. AUGUSTINE. Mr. Chairman, I would say that relates strictly to the individuals. By and large, I really don't see it as a problem.

If you have individuals with unethical personal standards such that they take advantage of that revolving door, then you have a major problem. I would go after those individuals with all the lawful effort I could muster.

The alternative is to completely shut the door. That is certainly a possibility, too.

Senator QUAYLE. Dr. Gansler, do you have anything to add?

Dr. GANSLER. I go back to my earlier comment relative to the importance of experience in these multibillion-dollar decisions.

I found when I was in the Government and since I have found that you are going to be making almost every day some major management decisions based primarily on judgments in these major programs and budget decisions, in fact national security decisions, that our system of having civilian rule over the military requires people to be civilians, requires them to have experience.

I think it is critical that you bring people into these top positions who have had experience and in the case of the acquisition people, that they have had experience in industry.

The problem is the inverse of that, revolving in two directions. The problem is when they leave, and I found the same thing as Norm did, I didn't find people who were trying to award contracts to their prior companies. They went out of the way to avoid that. I did and I think everyone did.

The problem is the other way, after they left, what kind of discretion are they going to use? I think a lot of people use discretion. There are some people who abuse it and they should be punished for it.

Senator QUAYLE. Should we be concerned about military officers who, upon retirement, go to work for defense contractors?

Is that a different problem?

Dr. GANSLER. You have rules right now that specifically address that question. You have abuses of them.

My concern is let us implement the current rules, which are quite strict, by the way, for the military. They are even more strict for the military than they are for the civilians.

There are people who do abuse those. They shouldn't. They should be punished for doing so. I don't think you need tighter rules than you have now.

Mr. AUGUSTINE. The problem is fundamentally different between civilians and uniform retirees. One distinguishing feature I can see is that you do have civilian control and that civilian control comes from the civilian service or you have to bring people in from the outside.

You would like to bring people from the outside who have some expertise. To bring me in and put me in charge of HUD or something would make no sense. To bring in the chairman of Coca-Cola and put him in charge of the Defense Department would, to me, make no sense.

It is a bit of a dilemma with no truly satisfactory solution.

Senator QUAYLE. May I ask one other question?

Mr. Augustine, I believe you observed how it is difficult to adopt revolutionary rather than, I suppose, evolutionary system concepts, particularly as the President mentioned in his speech a year or so ago when he talked about the strategic defense initiatives, about the emerging technology which is revolutionary rather than evolutionary.

Mr. AUGUSTINE. I think we have taken the first step by creating DARPA which doesn't have to live within service boundaries. The shortcoming with DARPA, of course, is that their ideas are not

always embraced with great enthusiasm by the services, rightly or wrongly.

One advantage to giving the operating CINC's a greater responsibility in the requirement generation process, through the JCS, is that those organizations do take a broader view of operations which cut across land, air, sea, and space. They are in a much better position to help identify opportunities to buy new technology than is a single service which has a set of roles and missions which are much more delimiting.

Senator QUAYLE. Dr. Gansler?

Dr. GANSLER. That is one of the points I listed in terms of the details that I think need to be changed? I agree that DARPA is a step in the right direction. One of the reasons it works in the way it works is because it is outside the institution, it is ad hoc versus the bureaucracy.

You can't get these changes internally very easily. The disadvantage is that the problem was not invented here and digestion into the services is a difficult one.

One might consider trying to set up funds in each of the services, setting them aside and saying these can only be used for nontraditional applications of either new or even existing technology, so that you essentially force some research through demonstration and I think the demonstration is the thing that convinces the military to apply it.

Only doing research is not sufficient. You need to go through the demonstration phase, for example, of sinking ships by using satellite and ground-based missiles instead of another ship. You will never get that tradition broken unless you demonstrate how cost effective and militarily effective it is.

You have to set some funds aside in order to get those issues addressed. They won't be addressed because there will always be low priorities in the traditional R&D and in the traditional production and application area.

I am not even sure the CINC's would have the right perspective in this. They, by reason of their job, have to be relatively shortsighted, they have to be worried about war tomorrow, and most of these applications of technologies tend to be longer term.

However, when it gets to the demonstration phase, they would be in an excellent place to have them integrated and tested because if they see it works, then they might try to apply it.

Israel had no problem finding multipiloted vehicles because they work in the war. We have a lot of trouble. You don't get flight pay and things like that. We have much more technical difficulty absorbing this new technology. Until it is demonstrated, it is going to be extremely difficult.

Senator QUAYLE. One final question.

Do either of you think we ought to reauthorize the Renegotiation Board?

Dr. GANSLER. No. It didn't achieve, I don't believe, the objective you were looking for, from the data I have seen. I don't think that is a major problem.

Senator QUAYLE. Mr. Augustine.

Mr. AUGUSTINE. Exactly.

Senator QUAYLE. I want to thank both of you. We will hold the hearing record open for a couple of hours to receive any other questions we might want to submit to you. This is a challenging area and we are trying to get involved and trying to get up to speed on some of the issues regarding the state of the defense procurement process.

I appreciate your time today. I look forward to personally becoming better acquainted with you and some of your ideas and thoughts on how we can not only streamline, but, as I said, just make the system work.

It is a huge complicated system. We want to make it work and we want to make it work efficiently.

I certainly thank you for your contribution which you have made today.

Mr. AUGUSTINE. Thank you.

Senator QUAYLE. The committee is adjourned.

[Whereupon, at 3:45 p.m., the task force adjourned, subject to the call of the Chair.]

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